

Numerous other embodiments may be envisioned without departing from the spirit and scope of the present invention.

IN THE CLAIMS

1. (currently amended) A multiple wavelength laser source comprising:

a loop mirror, ~~said loop mirror means~~ comprising a loop of active fiber, and a first coupler having four ports, the ~~fiber~~ loop of active fiber being connected to a first and second port of the first coupler;

at least one pump means for injecting pump energy into the loop of active fiber remote from the first coupler, thereby generating amplified spontaneous emissions; and

a plurality of wavelength-selective reflection devices, ~~said devices~~ having different selected wavelengths and coupled to at least a third port of the first coupler;

wherein each reflection device is for reflecting back into the fiber loop of active fiber a first portion, having a selected wavelength, of the amplified spontaneous emission produced by the loop of active fiber, and directing a second portion of the amplified spontaneous emission away from the loop of active fiber to a first an output port, which is optically coupled to at least one of the reflection devices.

2. (currently amended) A laser source as defined in claim 1, wherein the plurality of reflection devices is in series between the first coupler and the first output port.

3. (original) A laser source as defined in claim 1, further comprising an attenuator between the plurality of reflection devices and the third port of the first coupler for adjusting amplitude of light at a selected wavelength.

4. (original) A laser source as defined in claim 1, wherein the first coupler is a 3-dB coupler.

5. (currently amended) The A laser source as defined in claim 1, further comprising wherein another plurality of reflection devices is connected between a fourth port of the first coupler and another output port.

6. (original) A laser source as defined in claim 1, wherein the plurality of reflection devices is connected in parallel.

7. (currently amended) The laser source of claim 6, further comprising at least one additional output port; wherein at least one additional coupler is disposed between the first coupler and the at least one additional output port; and wherein each reflection device is disposed between the at least one additional coupler and the at least one additional output port.

8. (currently amended) The A laser source according to claim 1, further comprising a second output port; wherein the plurality of reflection devices comprises first and second reflection devices connected between first and second ports of a second coupler and the first and second output ports ~~of the laser source~~, respectively; and wherein a third port of the second coupler is being connected to the third port of the first coupler.

9. (currently amended) The A laser source according to claim 8, wherein a fourth port of the second coupler is connected to a third output port ~~of the laser source~~.

10. (currently amended) The A laser source according to claim 8, further comprising third and fourth reflection devices connected between first and second ports of a third coupler and the third and a fourth output ports, respectively; wherein ~~, of the laser source~~, a third port of the third coupler is being connected to the fourth port of the first coupler.

11. (original) The laser source of claim 1 further comprising an adjustable attenuator associated with each reflection device for adjusting amplitude of light reflected or transmitted by the reflection device.

12. (currently amended) A laser source system for producing multiple sets of lasing wavelengths, said system comprising:

laser source combining means for combining output from a plurality of multiple wavelength laser sources, each multiple wavelength laser source comprising:

a loop mirror means, said loop mirror means comprising:

a loop of active fiber; and

a coupler which is coupled, via a first and a second port, to both ends of the loop of active fiber;

at least one pump means for injecting pump energy into the loop of active fiber remote from the first coupler, thereby generating amplified spontaneous emissions; and

plurality of wavelength-selective reflection devices, said devices having different selected wavelengths and coupled to at least a third port of the coupler;

wherein each reflection device is for reflecting a first portion of the amplified spontaneous emission back into the loop of active fiber ~~produced by the loop of active fiber~~, and directing a second portion of the amplified spontaneous emission ~~produced by the loop of active fiber~~, away from the loop of active fiber to an output port, which is optically coupled to at least one of the reflection devices.

13. (original) A laser source as defined in claim 1 wherein the reflection devices are fiber Bragg gratings.

14. (original) A laser source according to claim 1 wherein the reflection devices are tunable filters with partially reflective mirrors.

15. (newly added) The laser source according to claim 1, wherein the pump means injects pump energy into the loop of active fiber via a wavelength-selective coupler.